L-Bar, New Mexico, Disposal Site

FACT SHEET

This fact sheet provides information about the Uranium Mill Tailings Radiation Control Act of 1978 Title II disposal site located near Seboyeta, New Mexico. This site is managed by the U.S. Department of Energy Office of Legacy Management.

Site Description and History

The L-Bar Disposal Site is in Cibola County approximately 47 miles west of Albuquerque, New Mexico, and 10 miles north of Laguna Pueblo. The disposal site is located on part of the former L-Bar ranch and is about 4 miles east-southeast of the village of Seboyeta. The site was previously owned and operated by SOHIO Western Mining Company (SOHIO).

Mining and milling at L-Bar began in 1977 and continued until 1981, when the mine closed because of economic conditions of the uranium industry. About 2.1 million tons of ore was processed at the mill. The milling operation created radioactive tailings, a predominantly sandy material. Tailings and liquid wastes were pumped in slurry form into an on-site tailings impoundment for disposal.

All aboveground structures, including the mine and mill buildings, have been demolished. SOHIO completed site surface reclamation in 2000.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604). The L-Bar site is under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites that were under active U.S. Nuclear Regulatory Commission (NRC) licenses when UMTRCA was enacted. Title II of the legislation specifies that after reclamation is completed, long-term custody of the site is the responsibility of either the federal government (U.S. Department of Energy [DOE]) or the host state, at the option of the state. The State of New Mexico declined to become the long-term custodian, and DOE assumed responsibility for the site. Under Title II of UMTRCA, the licensee, SOHIO, was responsible for remedial action. SOHIO encapsulated the tailings and other contaminated materials in an NRC-approved disposal cell. NRC's cleanup and reclamation standards are codified in Title 10 *Code of Federal Regulations* (CFR) Part 40, Appendix A. These standards conform to U.S. Environmental Protection Agency standards specified in 40 CFR 192. The NRC general license for long-term custody is defined in 10 CFR 40.28.

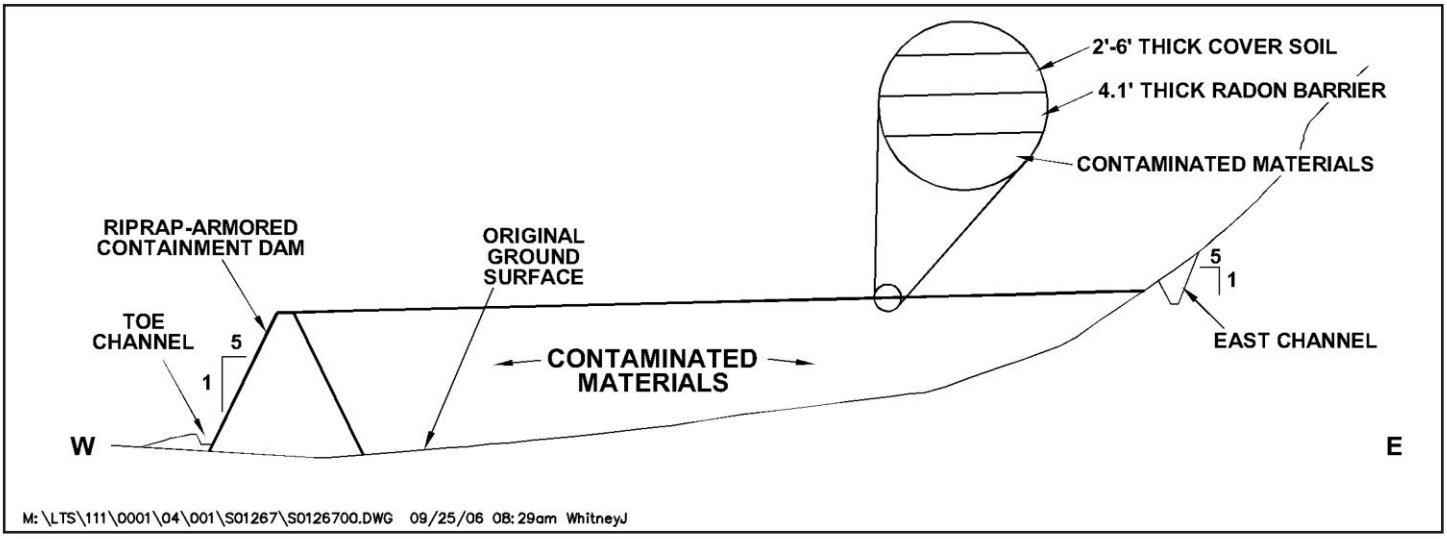
Location of the L-Bar Disposal Site

The site was included under general license by NRC and transferred to the DOE Office of Legacy Management for long-term custody in 2004.

Disposal Site

The site consists of a 100-acre disposal cell located on a 740-acre parcel. The disposal cell contains about 700,000 cubic yards of tailings. Seepage of tailings fluid has contaminated the First Tres Hermanos aquifer immediately below the disposal cell. The contaminants of concern in ground water are chloride, nitrate, selenium, sulfate, and uranium.

SOHIO operated a ground water contaminant-detection and monitoring program from 1981 to 1990 and developed a corrective action program in 1990. Both programs included extraction of contaminated ground water; the programs together extracted approximately 65 million gallons of ground water at the site. All extracted ground water was treated on site by evaporation. Because of the arid climate, recharge to the aquifer is meager, and the presence of ground water beneath the site was historically attributable largely to



West-East Cross Section of the L-Bar Disposal Cell

infiltration of processing fluids used in milling operations. Although some contamination is still present, the former extraction programs dewatered most of the water-bearing zone. Ground water modeling has predicted that the contaminated ground water plume will never migrate past the site boundary and will eventually recede. The disposal cell cover is expected to effectively restrict infiltration of precipitation into and through the tailings material.

Compliance Strategy

The compliance strategy at the L-Bar site is application of alternate concentration limits for selenium and uranium and alternate abatement standards for the other contaminants of concern in conjunction with ground water monitoring. Alternate concentration limits may be adopted within specified areas when established maximum concentration limits are unattainable or when no applicable standards exist. However, the alternate concentration limits must not pose a present or potential future hazard to human health or the environment. The years of pumping at the L-Bar site essentially dewatered the First Tres Hermanos aquifer at the site, and well yields have decreased to the point that recovery of contaminants is no longer effective. Because ground water modeling predicts that the remaining contamination will not migrate past the property boundary, alternate concentration limits and alternative abatement standards are protective of human health and the environment. DOE will conduct ground water monitoring annually for 3 years; if monitoring results indicate that seepage from the disposal cell is under control, sampling frequency will be reduced to once every 3 years thereafter. Monitoring will continue as long as any concentration exceeds a New Mexico State ground water protection standard in any well for a contaminant of concern or total dissolved solids.

Disposal Cell Design

The tailings cover system was designed with a minimum thickness of 4.1 feet of compacted clay consisting primarily of weathered Mancos Shale. The final reclamation construction placed an additional 325,000 cubic yards of final cover, which increased the average thickness of the cover to approximately 6 feet; some sections contain cover soils as much as 10 feet in thickness. The cover will reestablish with local vegetation, which will assist in mitigating potential erosion damage by wind and water. Drainage from the cover is directed toward a controlled discharge swale located on the western side of the disposal cell near the center of the containment dam. This swale is designed to collect all runoff from the top of the cover and direct it over the containment dam face to a discharge channel below the cell to the west. The cover has been designed with a modest slope that promotes runoff but minimizes erosive effects. The steeper-sloped face of the disposal cell is armored with riprap for erosion protection.

Riprap-armored diversion channels protect the perimeter of the disposal cell. These channels are designed to intercept overland runoff from a catastrophic flood event and carry that water away from the disposal cell.

Legacy Management Activities

DOE manages the disposal site according to a site-specific Long-Term Surveillance Plan to ensure that the disposal cell systems continue to prevent release of contaminants to the environment. Under provisions of this plan, DOE conducts annual inspections of the site to evaluate the condition of surface features, performs site maintenance as necessary, and monitors ground water to ensure the continued integrity of the disposal cell and to verify that contaminated ground water does not migrate off site. The encapsulated materials will remain potentially hazardous for thousands of years.

In accordance with governing regulations, the disposal cell is designed to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. However, the general license for long-term custody has no expiration date, and DOE's responsibility for the safety and integrity of the L-Bar Disposal Site will last indefinitely.

Contacts

Site-specific documents related to the L-Bar Disposal Site are available on the DOE Office of Legacy Management website at http://www.LM.doe.gov/land/sites/nm/lbar/lbar.htm.

For more information about DOE Office of Legacy Management activities at the L-Bar Disposal Site, contact

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